

REMARKS

Claims 19, 21-24, 27-36, 39 and 40 remain pending in the above-referenced application and are submitted for the Examiner's reconsideration. Applicants note with appreciation that claims 34-36 and 40 have been allowed.

Applicants have amended the claims to correct typographical errors.

Claims 19, 21, 22, 24, and 27 stand rejected under 35 U.S.C. § 103(a) as being obvious over The Flamm publication in view of United States Patent No. 4,795,529 to Kawasaki et al. ("Kawasaki"). Claims 19, 21, 22, 24, and 27 stand rejected under 35 U.S.C. § 103(a) as being obvious over EP 414 372 to Kadomura in view of Kawasaki and United States Patent No. 5,843,847 to Pu et al. Claims 23, 28-33, and 39 stand rejected under 35 U.S.C. § 103(a) as being obvious over Flamm or Kadomura in view of Kawasaki, Pu, and United States Patent No. 5,182,234 to Meyer.

Applicants do not understand the argumentation of the Examiner for these rejected claims.

In the current Office Action, as in the previous Office Action, several cited documents are combined with one another, and, based on this, the independent claims 19, 24, and 29 are rejected due to obviousness.

On pages 3 and 4 of the Office Action, the Examiner argues, with regard to claims 19 and 24, that in Kawasaki it is proposed to use C_4F_8 as etching medium. Because of that, it is supposed to be obvious to use C_4F_8 as an etching medium in the process taught by Flamm, because it is taught in both steps to etch the same material. By contrast, Applicants submit:

1) At the place cited by the Examiner (column 18, line 45, of Kawasaki) the etching of aluminum is discussed, not silicon, which is explicitly recited in our claims. The connected section of claim 18, lines 38-46 in Kawasaki teaches that, using the method and device described up to that point, instead of polysilicon, aluminum is also able to be etched. In such a case ("and in such a case") it is then supposed to be possible to use Cl_2 together with CCl_4 , CCl_4 being able to be replaced, among others, by C_4F_8 . The technical background for such considerations is the endeavor to see that the gas mixture have a so-called "critical potential" that is important for the method described there.

2) It is true that it is mentioned in claims 10 and 19 in Kawasaki that one may use C_4F_8 in a plasma treatment of polysilicon, but it cannot be inferred from either the claims or the specification what brings about the selection of these certain gases. By contrast, claims 19 and 24 explicitly make clear that C_4F_8 (and/or C_3F_6) is added to the process gas for the formation of passivating material. This specific motivation is not known in Kawasaki. Therefore, the argumentation that "It is prima facie obvious to use two compositions each of which is taught by the prior art to be useful for the same purpose" does not apply here.

With respect to Claim 29, the Examiner argues on page 5 of the Office Action that in Meyer it is proposed to use helium in Si etching. However, from the place cited in the Office Action (column 2, lines 65-68, of Meyer) such a procedure is not known. Applicants assume that, in this instance, actually the document of Charlet (US 5,047,115) was meant, since helium is named here as a gas to use. However, in Charlet it is not provided simultaneously to apply a substrate voltage having a frequency of less than 2 MHz. On the other hand, it is known from Kawasaki that one may apply a substrate voltage having a frequency of less than 2 MHz during etching (column 10, lines 18-41). The purpose of this measure is, according to the teaching, to neutralize positive electrons and thereby to prevent the so-called "dielectric breakdown" of an insulating material on the wafer. In any case, it is not provided in this teaching, simultaneously to add light ions. According to claim 29, a light gas that is easy to ionize is added, and at the same time, a substrate voltage having a frequency of less than 2 MHz is applied, so that, as is explicitly mentioned in the claim, the light ions are more easily able to follow the variation of the electrical field, based on their lower inertia. A neutralization of the ions by electrons in the plasma is not aimed at all. In other words: The intention of the frequency of less than 2 MHz according to claim 29 and according to Kawasaki are different from each other. As a matter of fact, they cannot be the same, since in Kawasaki the addition of light, ionizable gases is not provided at all. In summary, we are of the opinion that the combination of the features "the addition of light, ionizable gas" and "substrate voltage having a frequency of less than 2 MHz" was not obvious even when taking an overall view of the cited documents.

In light of the foregoing, Applicants respectfully submit that all of the pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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